

Official Draft Public Notice Version **October 11, 2016**

The findings, determinations, and assertions contained in this document are not final and subject to change following the public comment period.

**FACT SHEET AND STATEMENT OF BASIS
ASHLEY VALLEY WATER RECLAMATION FACILITY
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER
UPDES PERMIT NUMBER: UT0025348
UPDES BIOSOLIDS PERMIT NUMBER: UTL-025348
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000
MAJOR MUNICIPAL**

FACILITY CONTACT

Person Name: Dean Gibbs
Position: General Manager

Facility Name: Ashley Valley Water Reclamation Facility

Mailing and Facility Address: P.O. Box 426
Vernal, UT 84078

Telephone: (435) 789-9805

Actual Address: 2200 South 4000 East
Vernal, UT 84078

DESCRIPTION OF FACILITY

Ashley Valley Water Reclamation Facility (AVWRF) has a design flow rate of 4.7 million gallons per day (MGD). This facility has a loading of 4,510 pounds per day for both BOD5 and TSS with a design population equivalent of 18,540 that serves the Ashley Valley metropolitan area, consisting primarily of the cities of Vernal, Naples, and Maeser in Uintah County. The facility consists of a parshall flume, a mechanical bar screen, a vortex grit removal system, two oxidation ditches, two secondary clarifiers, and an ultraviolet (UV) disinfection system and cascade aeration. The solids handling consists of an aerated solids handling basin, one belt press for dewatering, and a biosolids storage pad. The latitude is 40°25'34" and longitude 109°27'26" with outfall STORET number 493741.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Water Quality adopted UAC R317-1-3.3, Technology-Based Phosphorus Effluent Limit (TBPEL) Rule in 2014. The TBPEL rule as it relates to "non-lagoon" wastewater treatment plants establishes new regulations for the discharge of phosphorus to surface waters and is self-

implementing. The TBPEL rule includes the following requirements for non-lagoon wastewater treatment plants:

The TBPEL requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state shall provide treatment processes which will produce effluent less than or equal to an annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020.

The TBPEL discharging treatment works are required to implement, at a minimum, monthly monitoring of the following beginning July 1, 2015:

R317-1-3.3, D, 1 Influent for total phosphorus (as P) and total Kjeldahl nitrogen (as N) concentrations;

R317-1-3.3, D, 2. Effluent for total phosphorus and orthophosphate (as P), ammonia, nitrate-nitrite and total Kjeldahl nitrogen (as N);

In R317-1-3.3, D, 3 the rule states that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours apart.

DISCHARGE

DESCRIPTION OF DISCHARGE

AVWRF has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. A summary of the last 3 years of data is attached and there were no significant violations.

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 40°25'34" and longitude 109°27'26". The discharge is through a 30-inch diameter gravity flow pipe leading from the cascade aeration basin to an unnamed ditch and hence to Ashley Creek.

RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge from the AVWRF flows into Ashley Creek, thence to the Green River. Ashley Creek is classified as 2B, 3B, and 4, the Green River is classified as 1C, 2B, 3B, and 4 according to *Utah Administrative Code (UAC) R317-2-13*:

- Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.
- Class 2B -- Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.

- Class 3B -- Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
- Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD5), *E. coli*, pH and percent removal for BOD5 and TSS are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. The oil and grease is based on best professional judgment (BPJ). Attached is a Wasteload Analysis for this discharge into Ashley Creek. It has been determined that this discharge will not cause a violation of water quality standards. An Antidegradation Level II review was completed by AVWRF and was submitted as an addendum to the application form. The permittee is expected to be able to comply with these limitations.

Total dissolved solids (TDS) limitations are based upon Utah Water Quality Standards for concentration values and the Colorado River Basin Salinity Control Forum (CRBSCF) for mass loading values when applicable as authorized in *UAC R317-2-4*. CRBSCF has established a policy for the reasonable increase of salinity for municipal discharges to any portion of the Colorado River stream system that has an impact on the lower main stem. The CRBSCF Policy entitled "NPDES Permit Program Policy for Implementation of Colorado River Salinity Standards" (Policy), with the most current version dated October 2014, states that the incremental increase in salinity shall be 400 mg/L or less, which is considered to be a reasonable incremental increase above the flow weighted average salinity of the intake water supply.

AVWRF submitted a technical memorandum dated April 20, 2010 summarizing the findings of the inflow and infiltration study, as well as the feasibility of implementing a TDS treatment system. As stated in the memo, the facility averages 426 mg/L incremental increase over the extremely low culinary source concentration of 89 mg/L. Even though effluent TDS concentrations are relatively low, the high flow volumes make it impracticable for the facility to meet a 1-ton/day or 366 tons/year loading requirement if that were to be included in their permit at any time in lieu of the incremental increase requirement.

Over the last permit cycle, AVWRF has pushed for improvements from each entity that owns and operates portions of the collection system. This has resulted in improvements to the plant's effluent TDS concentration, which for 2014 averages 507 mg/L with a monthly peak of 628 mg/L and for 2015 averages 467 mg/L with a monthly peak of 660 mg/L, with the latter being below the CRBSCF fresh water waiver policy clause of 500 mg/L, but is also substantially less than the upstream TDS concentrations in the receiving waters of Ashley Creek. Further treatment costs are not practicable as demonstrated in the memo due to the high costs of RO operations. Upon review of this technical memorandum, the permitting authority has concluded that AVWRF has adequately demonstrated an exemption to the CRBSCF Policy requirement of achieving a 400 mg/L incremental increase for TDS at this time. Based upon these considerations and in the permitting authority's BPJ, the TDS incremental increase and loading requirements have not been included in AVWRF's permit.

Regarding a daily maximum TDS concentration limit for inclusion in their renewal permit, DWQ

agrees that the proposed limit of 760 mg/L is reasonable based upon BPJ, which is significantly less than the current in stream TDS Water Quality Standard of 1,200 mg/L.

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. RP for this permit renewal was conducted following DWQ's September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance).

A quantitative RP analysis was performed to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis, there were no parameters that exceeded the most stringent chronic water quality standards. In addition, a number of constituents had detection limits near or greater than the calculated wasteload numeric criteria. Since the majority of sample analysis was non-detect, AVWRF will be required to use testing methods in which the minimum detection limit is below those listed in Part II.A of the permit. Last, the frequency of this sampling will be increased from annual to semi-annual.

The permit limitations are:

Parameter	Effluent Limitations *a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow	4.7	--	--	--	--
BOD ₅ , mg/L	25	35	--	--	--
BOD ₅ Min. % Removal	85	--	--	--	--
TSS, mg/L	25	35	--	--	--
TSS Min. % Removal	85	--	--	--	--
Dissolved Oxygen, mg/L	--	--	--	5.5	--
Total Ammonia (as N), mg/L					
Summer (Jul-Sep)	2.8	--	--	--	10.7
Fall (Oct-Dec)	4.1	--	--	--	11.6
Winter (Jan-Mar)	5.8	--	--	--	19.4
Spring (Apr-Jun)	3.9	--	--	--	11.6
<i>E. coli</i> , No./100mL	126	157	--	--	--
WET, Chronic Biomonitoring	--	--	--	--	IC ₂₅ >63.4%
Oil & Grease, mg/L	--	--	--	--	10.0
pH, Standard Units	--	--	--	6.5	9
TDS, mg/L	--	--	--	--	760

SELF-MONITORING AND REPORTING REQUIREMENTS

The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report or NetDMR (DMR) forms due 28 days after the end of the monitoring period. Lab sheets for biomonitoring must be attached to the biomonitoring DMR. Lab sheets for metals and toxic organics must be attached to the DMRs.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Continuous	Recorder	MGD
BOD ₅ , Influent *d	2 x Week	Composite	mg/L
Effluent	2 x Week	Composite	mg/L
TSS, Influent *d	2 x Week	Composite	mg/L
Effluent	2 x Week	Composite	mg/L
<i>E. coli</i>	2 x Week	Grab	No./100mL
pH	5 x Week	Grab	SU
Total Ammonia (as N)	2 x Week	Composite	mg/L
DO	5 x Week	Grab	mg/L
Selenium	Monthly	Grab	mg/L
WET – Biomonitoring	1 st & 3 rd Quarter 2 nd & 4 th Quarter	Composite	Pass/Fail
Ceriodaphnia – Chronic		Composite	Pass/Fail
Fathead Minnows - Chronic			
Oil & Grease *e	When Sheen is Observed	Grab	mg/L
Orthophosphate, (as P) *f	Monthly	Composite	mg/L
Effluent			
Phosphorus, Total, *f	Monthly	Composite	mg/L
Influent			
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen, TKN (as N) *f	Monthly	Composite	mg/L
Influent			
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃ *f	Monthly	Composite	mg/L
Nitrite, NO ₂ *f	Monthly	Composite	mg/L
TDS, mg/L	Monthly	Composite	mg/L
Metals, Influent	2 x Year	Composite	mg/L
Effluent	2 x Year	Composite	mg/L
Organic Toxics	Annually	Grab	mg/L

*a See Definitions, *Part VIII*, for definition of terms.

*b Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.

- *c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- *d In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.
- *e Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *f These reflect changes required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limit rule.

BIOSOLIDS

For clarification purposes, sewage sludge is considered solids, until treatment or testing shows that the solids are safe, and meet beneficial use standards. After the solids are tested or treated, the solids are then known as biosolids. Class A biosolids, may be used for high public contact sites, such as home lawns and gardens, parks, or playing fields, etc. Class B biosolids may be used for low public contact sites, such as farms, rangeland, or reclamation sites, etc.

SUBSTANTIAL BIOSOLIDS TREATMENT CHANGES

During pervious permit cycles, AVWRF practiced composting and distribution of biosolids on site. In 2010 they started burying the biosolids during winter months. Starting in 2013 they halted the composting practice altogether and started disposing of the solids at the onsite landfill.

DESCRIPTION OF TREATMENT AND DISPOSAL

AVWRF submitted their 2015 annual biosolids report on February 8, 2016. The report states the Permittee produced 549 dry metric tons (DMT) of solids. The solids are transferred to the onsite landfill (Ashely Valley WRF Landfill).

The solids are stabilized in oxidation ditch, with a solids retention time of 20-30 days in the basins. Solids are dewatered by belt presses to about 15 percent solids and transferred to a drying pad for further drying. The solids are finally transferred to an onsite landfill.

SELF-MONITORING REQUIREMENTS

Under *40 CFR 503.16(a)(1)*, the self-monitoring requirements are based upon the amount of biosolids disposed per year and shall be monitored according to the chart below.

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch
> 320 to < 1650	> 290 to < 1,500	Once a Quarter or Four Times
> 1,650 to < 16,500	> 1,500 to < 15,000	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

In 2015, AVWRF disposed of 549 DMT of biosolids, accordingly they should sample at least four times a year. However, AVWRF transfers the biosolids to its onsite landfill and as long as they continue to do this, they are only required to sample according to 40 CFR 258 and their landfill permit. If they switch treatment and disposal methods in the future to land application, they will return to the required frequency under 40 CFR 503 of four times per year.

Landfill Monitoring

Under 40 CFR 258, the landfill monitoring requirements include a paint filter test. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (40 CFR 258.28(c)(1)). AVWRF disposed of 549 DMT of biosolids at the AVWRFWRF Landfill.

BIOSOLIDS LIMITATIONS

Heavy Metals

Class A Biosolids for Home Lawn and Garden Use

The intent of the heavy metals regulations of Table 3, 40 CFR 503.13 is to ensure the heavy metals do not build up in the soil in home lawn and gardens to the point where the heavy metals become phytotoxic to plants. The permittee will be required to produce an information sheet (see Part III. C. of the permit) to made available to all people who are receiving and land applying Class A biosolids to their lawns and gardens. If the instructions of the information sheet are followed to any reasonable degree, the Class A biosolids will be able to be land applied year after year, to the same lawns and garden plots without any deleterious effects to the environment. The information sheet must be provided to the public, because the permittee is not required, nor able to track the quantity of Class A biosolids that are land applied to home lawns and gardens.

Class A Requirements With Regards to Heavy Metals

If the biosolids are to be applied to a lawn or home garden, the biosolids shall not exceed the maximum heavy metals in Table 1 and the monthly average pollutant concentrations in Table 3 (see Table 1 and Table 3 below). If the biosolids do not meet these requirements, the biosolids cannot be sold or given away for applications to home lawns and gardens.

Class B Requirements for Agriculture and Reclamation Sites

The intent of the heavy metals regulations of Tables 1, 2 and 3, of 40 CFR 503.13 is to ensure that heavy metals do not build up in the soil at farms, forest land, and land reclamation sites to the point where the heavy metals become phytotoxic to plants. The permittee will be required to

produce an information sheet (see *Part III. C.* of the permit) to be handed out to all people who are receiving and land applying Class B biosolids to farms, ranches, and land reclamation sites (if biosolids are only applied to land owned by the permittee, the information sheet requirements are waived). If the biosolids are land applied according to the regulations of *40 CFR 503.13*, to any reasonable degree, the Class B biosolids will be able to be land applied year after year, to the same farms, ranches, and land reclamation sites without any deleterious effects to the environment.

Class B Requirements With Regards to Heavy Metals

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site it must meet at all times:

The maximum heavy metals listed in *40 CFR Part 503.13(b) Table 1* and the heavy metals loading rates in *40 CFR Part 503.13(b) Table 2*; or

The maximum heavy metals in *40 CFR Part 503.13(b) Table 1* and the monthly heavy metals concentrations in *40 CFR Part 503.13(b) Table 3*.

Tables 1, 2, and 3 of Heavy Metal Limitations

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits, (mg/kg)	CPLR ¹ , (mg/ha)	Pollutant Conc. Limits, (mg/kg)	APLR ² , (mg/ha-yr)
Total Arsenic	75	41	41	41
Total Cadmium	85	39	39	39
Total Copper	4300	1500	1500	1500
Total Lead	840	300	300	300
Total Mercury	57	17	17	17
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	420
Total Selenium	100	100	100	100
Total Zinc	7500	2800	2800	2800

Any violation of these limitations shall be reported in accordance with the requirements of Part III.F.1. of the permit. If the biosolids do not meet these requirements they cannot be land applied.

Pathogens

The Pathogen Control class listed in the table below must be met;

¹ CPLR -- Cumulative Pollutant Loading Rate

² APLR -- Annual Pollutant Loading Rate

Pathogen Control Class	
Class A	Class B
B <i>Salmonella</i> species –less than three (3) MPN ³ per four (4) grams total solids (or less than 1,000 fecal coliforms per gram total solids)	Fecal Coliforms –less than 2,000,000 colony forming units (CFU) per gram total solids
Enteric viruses –less than one (1) MPN (or plaque forming unit) per four (4) grams total solids	
Viable helminth ova –less than one (1) MPN per four (4) grams total solids	

Class A Requirements for Home Lawn and Garden Use

If biosolids are land applied to home lawns and gardens, the biosolids need to be treated by a specific process to further reduce pathogens (PFRP), and meet a microbiological limit of less than less than 3 most probable number (MPN) of *Salmonella* per 4 grams of total solids (or less than 1,000 most probable number (MPN/g) of fecal coliform per gram of total solids) to be considered Class A biosolids.

AVWRF does not intend to give away biosolids for land application on home lawns or gardens, and will therefore not be required to meet PFRP. If the permittee changes their intentions in the future, they will need to meet a specific PFRP, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice.

The practice of sale or giveaway to the public is an acceptable use of biosolids of this quality as long as the biosolids continue to meet Class A standards with respect to pathogens. If the biosolids do not meet Class A pathogen standards the biosolids cannot be sold or given away to the public, and the permittee will need find another method of beneficial use or disposal.

Pathogens Class B

If biosolids are to be land applied for agriculture or land reclamation the solids need to be treated by a specific process to significantly reduce pathogens (PSRP).

AVWRF does not intend to land apply the biosolids and will therefore not be required to meet PSRP. If the permittee intends to land apply in the future, they will need to meet a specific PSRP, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice.

Vector Attraction Reduction (VAR)

If the biosolids are land applied AVWRF will be required to meet VAR through the use of a method of listed under 40 CFR 503.33. AVWRF does not intend to land apply the biosolids and will therefore not be required to meet VAR. If the permittee intends to land apply in the future, they need to meet one of the listed alternatives in 40 CFR 503.33, the Director and the EPA must

³ MPN –Most Probable Number

be informed at least thirty (30) days prior to its use. This change may be made without additional public notice.

If the biosolids do not meet a method of VAR, the biosolids cannot be land applied.

If the permittee intends to use another one of the listed alternatives in *40 CFR 503.33*, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice

Landfill Monitoring

Under *40 CFR 258*, the landfill monitoring requirements include a paint filter test to determine if the biosolids exhibit free liquid. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (*40 CFR 258.28(c)(1)*).

Record Keeping

The record keeping requirements from *40 CFR 503.17* is included under *Part III.G.* of the permit. The amount of time the records must be maintained are dependent on the quality of the biosolids in regards to the metals concentrations. If the biosolids continue to meet the metals limits of *Table 3* of *40 CFR 503.13*, and are sold or given away the records must be retained for a minimum of five years. If the biosolids are disposed in a landfill the records must be retained for a minimum of five years.

Reporting

AVWRF must report annually as required in *40 CFR 503.18*. This report is to include the results of all monitoring performed in accordance with *Part III.B* of the permit, information on management practices, biosolids treatment, and certifications. This report is due no later than February 19 of each year. Each report is for the previous calendar year.

MONITORING DATA

Metals Monitoring Data

AVWRF is required to sample for metals at least four times a year, in 2015 all biosolids were disposed of in a landfill, therefore the requirement to sample for metals is waived.

Pathogen Monitoring Data

AVWRF was not required to monitor for pathogens, therefore there is not any monitoring data.

STORM WATER

STORMWATER REQUIREMENTS

Storm water provisions are included in this combined UPDES permit.

The storm water requirements are based on the UPDES Multi-Sector General Permit for Storm Water Discharges for Industrial Activity, General Permit No. UTR000000 (MSGP). All sections of the MSGP that pertain to discharges from wastewater treatment plants have been included and

sections which are redundant or do not pertain have been deleted.

The permit requires the preparation and implementation of a storm water pollution prevention plan for all areas within the confines of the plant. Elements of this plan are required to include:

1. The development of a pollution prevention team:
2. Development of drainage maps and materials stockpiles:
3. An inventory of exposed materials:
4. Spill reporting and response procedures:
5. A preventative maintenance program:
6. Employee training:
7. Certification that storm water discharges are not mixed with non-storm water discharges:
8. Compliance site evaluations and potential pollutant source identification, and:
9. Visual examinations of storm water discharges.

AVWRF is currently covered under the UPDES Multi Sector General Permit for Industrial Activities.

PRETREATMENT REQUIREMENTS

AVWRF has not been designated for pretreatment program development because it does not meet conditions which necessitate a full program. The flow through the plant is less than five (5) MGD, there are no categorical industries discharging to the treatment facility, industrial discharges comprise less than 1 percent of the flow through the treatment facility, and there is no indication of pass through or interference with the operation of the treatment facility such as upsets or violations of the POTW's UPDES permit limits.

Although the permittee does not have to develop a State-approved pretreatment program, any wastewater discharges to the sanitary sewer are subject to Federal, State and local regulations. Pursuant to Section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in 40 CFR 403 and the State Pretreatment Requirements found in UAC R317-8-8.

An industrial waste survey (IWS) is required of the permittee as stated in Part II of the permit. The IWS is to assess the needs of the permittee regarding pretreatment assistance. The IWS is required to be submitted within sixty (60) days after the issuance of the permit. If an Industrial User begins to discharge or an existing Industrial User changes their discharge the permittee must resubmit an IWS no later than sixty days following the introduction or change as stated in Part II of the permit.

It is required that the permittee submit for review any local limits that are developed to the Division of Water Quality for review. If local limits are developed it is required that the permittee perform an annual evaluation of the need to revise or develop technically based local

limits for pollutants of concern, to implement the general and specific prohibitions *40 CFR, Part 403.5(a)* and *Part 403.5(b)*. This evaluation may indicate that present local limits are sufficiently protective, need to be revised or should be developed.

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring). Authority to require effluent biomonitoring is provided in Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317-2-7.2.

Since the permittee is a major municipal discharger, the renewal permit will require whole effluent toxicity (WET) testing. As a result of AVWRF being 100% of the flow in the receiving stream, chronic testing will be required using a five dilution test, and establishing a percent effluent equivalent to an IC_{25} . AVWRF will pass the the chronic WET test if the $IC_{25} > 63.4\%$. Chronic WET tests will be completed quarterly alternating between Ceriodaphnia dubia and Pimephales promelas (fathead minnows). Since AVWRF has consistently passed their acute testing, no WET limits will be required. A WET reopener section is included in the boilerplate of the permit which allows for the permit to be opened and modified following proper administrative procedures.

PERMIT DURATION

It is recommended that this permit be effective for a duration of five (5) years.

Drafted by
Daniel Griffin, Discharge, Biosolids
Jennifer Robinson, Pretreatment
Michael George, Storm Water
Ken Hoffman, Reasonable Potential Analysis
Dave Wham, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: Month Day, Year
Ended: Month Day, Year

Comments will be received at: 195 North 1950 West
PO Box 144870
Salt Lake City, UT 84114-4870

The Public Noticed of the draft permit was published in the (NEWSPAPER OF RECORD FOR AREA).

During the public comment period provided under R317-8-6.5, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in R317-8-6.12.

ADDENDUM TO FSSOB

During finalization of the Permit certain dates, spelling edits and minor language corrections were completed. Due to the nature of these changes they were not considered Major and the permit is not required to be re Public Noticed.

Responsiveness Summary

(Explain any comments received and response sent. Actual letters can be referenced, but not required to be included).

This Page Intentionally Left Blank

PENDING DRAFT

ATTACHMENT 1

Industrial Waste Survey

PV DRAFT

This Page Intentionally Left Blank

PV DRAFT

Industrial Pretreatment Wastewater Survey



Do you periodically experience any of the following treatment works problems:

foam, floaties or unusual colors
plugged collection lines caused by grease, sand, flour, etc.
discharging excessive suspended solids, even in the winter
smells unusually bad
waste treatment facility doesn't seem to be treating the waste right

Perhaps the solution to a problem like one of these may lie in investigating the types and amounts of wastewater entering the sewer system from industrial users.

An industrial user (IU) is defined as a non-domestic user discharging to the waste treatment facility which meets any of the following criteria:

1. **has a lot of process wastewater (5% of the flow at the waste treatment facility or more than 25,000 gallons per work day.)**

Examples: Food processor, dairy, slaughterhouse, industrial laundry.

2. **is subject to Federal Categorical Pretreatment Standards;**

Examples: metal plating, cleaning or coating of metals, blueing of metals, aluminum extruding, circuit board manufacturing, tanning animal skins, pesticide formulating or packaging, and pharmaceutical manufacturing or packaging,

3. **is a concern to the POTW.**

Examples: septage hauler, restaurant and food service, car wash, hospital, photo lab, carpet cleaner, commercial laundry.

All users of the water treatment facility are **prohibited** from making the following types of discharges:

1. A discharge which creates a fire or explosion hazard in the collection system.
2. A discharge which creates toxic gases, vapor or fumes in the collection system.
3. A discharge of solids or thick liquids which creates flow obstructions in the collection system.
4. An acidic discharge (low pH) which causes corrosive damage to the collection system.
5. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause problems in the collection system or at the waste treatment facility.
6. Waste haulers are prohibited from discharging without permission. (No midnight dumping!)

When the solution to a sewer system problem may be found by investigating the types and amounts of wastewater entering the sewer system discharged from IUs, it's appropriate to conduct an Industrial Waste Survey.

An Industrial Waste Survey consists of:

Step 1: Identify Industrial Users

Make a list of all the commercial and industrial sewer connections.

Sources for the list:

business license, building permits, water and wastewater billing, Chamber of Commerce, newspaper, telephone book, yellow pages.

Split the list into two groups:

domestic wastewater only--no further information needed
everyone else (IUs)

Step 2: Preliminary Inspection

Go visit each IU identified on the "everybody else" list.

Fill out the **Preliminary Inspection Form** during the site visit.

Step 3: Informing the State

Please fax or send a copy of the Preliminary inspection form (both sides) to:

Jennifer Robinson

Division of Water Quality
288 North 1460 West
P.O. Box 144870
Salt Lake City, UT 84114-4870

Phone: (801) 536-4383
Fax: (801) 536-4301
E-mail: jenrobinson@utah.gov

PRELIMINARY INSPECTION FORM

INSPECTION DATE ____ / ____ / ____

Name of Business _____

Person Contacted _____

Address _____

Phone Number _____

Description of Business _____

Principal product or service: _____

Raw Materials used: _____

Production process is: ☐ Batch ☐ Continuous ☐ Both

Is production subject to seasonal variation? ☐ yes ☐ no

If yes, briefly describe seasonal production cycle. _____

This facility generates the following types of wastes (check all that apply):

- | | |
|---|--|
| 1. <input type="checkbox"/> Domestic wastes | (Restrooms, employee showers, etc.) |
| 2. <input type="checkbox"/> Cooling water, non-contact | 3. <input type="checkbox"/> Boiler/Tower blowdown |
| 4. <input type="checkbox"/> Cooling water, contact | 5. <input type="checkbox"/> Process |
| 6. <input type="checkbox"/> Equipment/Facility washdown | 7. <input type="checkbox"/> Air Pollution Control Unit |
| 8. <input type="checkbox"/> Storm water runoff to sewer | 9. <input type="checkbox"/> Other describe |

Wastes are discharged to (check all that apply):

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Sanitary sewer | <input type="checkbox"/> Storm sewer |
| <input type="checkbox"/> Surface water | <input type="checkbox"/> Ground water |
| <input type="checkbox"/> Waste haulers | <input type="checkbox"/> Evaporation |
| <input type="checkbox"/> Other (describe) | |

Name of waste hauler(s), if used _____

Is a grease trap installed? Yes No

Is it operational? Yes No

Does the business discharge a lot of process wastewater?

- | | | |
|---|-----|----|
| • More than 5% of the flow to the waste treatment facility? | Yes | No |
| • More than 25,000 gallons per work day? | Yes | No |

Does the business do any of the following:

- | | |
|---|--|
| <input type="checkbox"/> Adhesives | <input type="checkbox"/> Car Wash |
| <input type="checkbox"/> Aluminum Forming | <input type="checkbox"/> Carpet Cleaner |
| <input type="checkbox"/> Battery Manufacturing | <input type="checkbox"/> Dairy |
| <input type="checkbox"/> Copper Forming | <input type="checkbox"/> Food Processor |
| <input type="checkbox"/> Electric & Electronic Components | <input type="checkbox"/> Hospital |
| <input type="checkbox"/> Explosives Manufacturing | <input type="checkbox"/> Laundries |
| <input type="checkbox"/> Foundries | <input type="checkbox"/> Photo Lab |
| <input type="checkbox"/> Inorganic Chemicals Mfg. or Packaging | <input type="checkbox"/> Restaurant & Food Service |
| <input type="checkbox"/> Industrial Porcelain Ceramic Manufacturing | <input type="checkbox"/> Septage Hauler |
| <input type="checkbox"/> Iron & Steel | <input type="checkbox"/> Slaughter House |
| <input type="checkbox"/> Metal Finishing, Coating or Cleaning | |
| <input type="checkbox"/> Mining | |
| <input type="checkbox"/> Nonferrous Metals Manufacturing | |
| <input type="checkbox"/> Organic Chemicals Manufacturing or Packaging | |
| <input type="checkbox"/> Paint & Ink Manufacturing | |
| <input type="checkbox"/> Pesticides Formulating or Packaging | |
| <input type="checkbox"/> Petroleum Refining | |
| <input type="checkbox"/> Pharmaceuticals Manufacturing or Packaging | |
| <input type="checkbox"/> Plastics Manufacturing | |
| <input type="checkbox"/> Rubber Manufacturing | |
| <input type="checkbox"/> Soaps & Detergents Manufacturing | |
| <input type="checkbox"/> Steam Electric Generation | |
| <input type="checkbox"/> Tanning Animal Skins | |
| <input type="checkbox"/> Textile Mills | |

Are any process changes or expansions planned during the next three years? Yes No
If yes, attach a separate sheet to this form describing the nature of planned changes or expansions.

Inspector

Waste Treatment Facility

Please send a copy of the preliminary inspection form (both sides) to:

Jennifer Robinson
Division of Water Quality
P. O. Box 144870
Salt Lake City, Utah 84114-4870

Phone: (801) 536-4383

Fax: (801) 536-4301

E-Mail: jenrobinson@utah.gov

	Industrial User	Jurisdiction	SIC Codes	Categorical Standard Number	Total Average Process Flow (gpd)	Total Average Facility Flow (gpd)	Facility Description
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

This Page Intentionally Left Blank

PV DRAFT

ATTACHMENT 2

Wasteload Analysis

PV DRAFT

PV DRAFT

Utah Division of Water Quality

Statement of Basis

ADDENDUM

Wasteload Analysis and Antidegradation Level I Review - PRELIMINARY

Date: March 16, 2016

Prepared by: Dave Wham
Standards and Technical Services

Facility: Ashley Valley Water Reclamation Facility
UPDES No. UT-0025348
Outfall 001

Receiving water: Ashley Creek (2B, 3B, 4)

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

Discharge

Outfall 001:

The maximum monthly daily discharge for the facility is 4.7 MGD.

Receiving Water

The receiving water for Outfall 001 is Ashley Creek which is tributary to the Green River.

Ashely Creek's designated beneficial uses, as per UAC R317-2-13.1.b, *Ashley Creek and tributaries, from confluence with Green River to Steinaker diversion*, are 2B, 3B, 4.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 3B - Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.*

Utah Division of Water Quality
Wasteload Analysis
Ashley Valley Water Reclamation Facility
UPDES No. UT-0025348

- *Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.*

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). Due to a lack of flow records for Ashley Creek, the 20th percentile of available flow measurements was calculated for the period of record to approximate the 7Q10 low flow condition. The source of flow data was DWQ sampling station # 4937440, Ashley Creek above Ashley Valley WWTP (2000-2011). The critical low flow condition for Ashley Creek is 4.2 cfs.

Ambient Butterfield Creek water quality was characterized based on samples collected from DWQ sampling station # 4937440, Ashley Creek above Ashley Valley WWTP (2000-2011).

TMDL

Ashley Creek is listed as impaired for total dissolved solids (TDS), selenium, and aluminum according to Utah's 2014 303(d) Water Quality Assessment. A TMDL has not been completed for these constituents and this time. Water quality based effluent limits (WQBELs) for these constituents will be set at the applicable water quality standards with no allowance for mixing.

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone.

For Outfall 001, the effluent was considered to be totally mixed as the ratio of river flow (7Q10) to discharge flow was .58 (≤ 2). Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were ammonia, aluminum, TDS, and selenium as determined in consultation with the UPDES Permit Writer.

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

IC25 WET limits for Outfall 011 should be based on 63% effluent.

Utah Division of Water Quality
Wasteload Analysis
Ashley Valley Water Reclamation Facility
UPDES No. UT-0025348

Receiving Water Quality and Standards

The water quality standards for dissolved metals are dependent on hardness (total as CaCO₃). Based on DWQ monitoring data from Ashley Creek, the average hardness exceeds 400 mg/L. Per Utah R317-2-14, a maximum hardness of 400 mg/L was used for determining the dissolved metals criteria. Ambient conditions were estimated using monitoring data from Ashley Creek above Ashley Valley WWTP (2000-2011). The 80th percentile of observed data was calculated, with one-half the reporting limit assumed for non-detects.

Effluent Limits

Effluent limits for conservative pollutants were determined using a mass balance mixing analysis (UDWQ 2012). The hardness dependent conversion factors (CF) per UAC R317-2-14 Table 2.14.3a and Table 2.14.3b were used to translate the dissolved metals effluent limits to total recoverable metals effluent limits, assuming a hardness of 400 mg/L. Effluent limits are presented in the Wasteload Addendum with the following exceptions:

- 1) The receiving water is 303(d) listed for TDS, therefore, an acute limit of 1200 mg/l applies.
- 2) The receiving water is 303(d) listed for Selenium, therefore, an acute limit of 20 ug/l and a chronic limit of 4.6 ug/l applies (expressed as total recoverable).
- 3) The receiving water is 303(d) listed for Aluminum, therefore, an acute limit of 750 ug/l applies (expressed as total recoverable).

Antidegradation Level I Review

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial uses will be protected if the discharge remains below the WQBELs presented in this wasteload. A Level II Antidegradation Review (ADR) is not required for this discharge since the pollutant concentration and load is not increasing under this permit renewal.

Documents:

WLA Document: *AshleyValley_WLADoc_3-16-16.docx*
Wasteload Analysis and Addendum: *AshleyValley_WLA_3-16-16.xlsm*

References:

Utah Division of Water Quality. 2012. *Utah Wasteload Analysis Procedures Version 1.0*.

Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis
SUMMARY

Discharging Facility: Ashley Valley

UPDES No: UT-0025348

Current Flow: 4.70 MGD Design Flow

Design Flow 4.70 MGD

Receiving Water: Ashley Creek => Green River

Stream Classification: 2B, 3B, 4

Stream Flows [cfs]: 4.20 Summer (July-Sept) 20th Percentile

4.20 Fall (Oct-Dec) 20th Percentile

4.20 Winter (Jan-Mar) 20th Percentile

4.20 Spring (Apr-June) 20th Percentile

0.0 Average

Stream TDS Values: 740.0 Summer (July-Sept) Average

1058.0 Fall (Oct-Dec) Average

1149.0 Winter (Jan-Mar) Average

634.0 Spring (Apr-June) Average

Effluent Limits:

Flow, MGD: 4.70 MGD Design Flow

BOD, mg/l: 25.0 Summer 5.0 Indicator

Dissolved Oxygen, mg/l: 4.0 Summer 5.5 30 Day Average

TNH3, Chronic, mg/l: 2.8 Summer Varies Function of pH and Temperature

TDS, mg/l: 1465.7 Summer 1200.0

WQ Standard:

Modeling Parameters:

Acute River Width: 50.0%

Chronic River Width: 100.0%

Level 1 Antidegradation Level Completed: Level II Review not required.

Date: 3/16/2016

Permit Writer:

WLA by:

WQM Sec. Approval:

TMDL Sec. Approval:





**Utah Division of Water Quality
Salt Lake City, Utah**

**WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis**

16-Mar-16
4:00 PM

Facilities: Ashley Valley
Discharging to: Ashley Creek => Green River

UPDES No: UT-0025348

THIS IS A DRAFT DOCUMENT

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

The numeric criteria in this wasteload analysis may always be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

II. Receiving Water and Stream Classification

Ashley Creek => Green River:	2B, 3B, 4
Antidegradation Review:	Level I review completed. Level II review not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.50 mg/l (30 Day Average) 4.00 mg/l (7Day Average) 3.00 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

**Utah Division of Water Quality
Salt Lake City, Utah**

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	3.416 lbs/day	750.00	ug/l	29.450 lbs/day
Arsenic	190.00 ug/l	7.461 lbs/day	340.00	ug/l	13.350 lbs/day
Cadmium	0.76 ug/l	0.030 lbs/day	8.73	ug/l	0.343 lbs/day
Chromium III	268.22 ug/l	10.532 lbs/day	5611.67	ug/l	220.349 lbs/day
Chromium VI	11.00 ug/l	0.432 lbs/day	16.00	ug/l	0.628 lbs/day
Copper	30.50 ug/l	1.198 lbs/day	51.68	ug/l	2.029 lbs/day
Iron			1000.00	ug/l	39.266 lbs/day
Lead	18.58 ug/l	0.730 lbs/day	476.82	ug/l	18.723 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.094 lbs/day
Nickel	168.54 ug/l	6.618 lbs/day	1515.91	ug/l	59.524 lbs/day
Selenium	4.60 ug/l	0.181 lbs/day	20.00	ug/l	0.785 lbs/day
Silver	N/A ug/l	N/A lbs/day	41.07	ug/l	1.613 lbs/day
Zinc	387.83 ug/l	15.229 lbs/day	387.83	ug/l	15.229 lbs/day

* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO₃

Metals Standards Based upon a Hardness of 400 mg/l as CaCO₃

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aldrin			1.500	ug/l	0.059 lbs/day
Chlordane	0.004 ug/l	0.266 lbs/day	1.200	ug/l	0.047 lbs/day
DDT, DDE	0.001 ug/l	0.062 lbs/day	0.550	ug/l	0.022 lbs/day
Dieldrin	0.002 ug/l	0.117 lbs/day	1.250	ug/l	0.049 lbs/day
Endosulfan	0.056 ug/l	3.462 lbs/day	0.110	ug/l	0.004 lbs/day
Endrin	0.002 ug/l	0.142 lbs/day	0.090	ug/l	0.004 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.235 lbs/day	0.260	ug/l	0.010 lbs/day
Lindane	0.080 ug/l	4.946 lbs/day	1.000	ug/l	0.039 lbs/day
Methoxychlor			0.030	ug/l	0.001 lbs/day
Mirex			0.010	ug/l	0.000 lbs/day
Parathion			0.040	ug/l	0.002 lbs/day
PCB's	0.014 ug/l	0.866 lbs/day	2.000	ug/l	0.079 lbs/day
Pentachlorophenol	13.00 ug/l	803.766 lbs/day	20.000	ug/l	0.785 lbs/day
Toxephene	0.0002 ug/l	0.012 lbs/day	0.7300	ug/l	0.029 lbs/day

**Utah Division of Water Quality
Salt Lake City, Utah**

IV. Numeric Stream Standards for Protection of Agriculture

4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Concentration	Load*
Arsenic		100.0 ug/l	lbs/day
Boron		750.0 ug/l	lbs/day
Cadmium		10.0 ug/l	0.20 lbs/day
Chromium		100.0 ug/l	lbs/day
Copper		200.0 ug/l	lbs/day
Lead		100.0 ug/l	lbs/day
Selenium		50.0 ug/l	lbs/day
TDS, Summer		1200.0 mg/l	23.56 tons/day

V. Numeric Stream Standards for Protection of Human Health (Class 1C Waters)

4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
Metals	Concentration	Concentration	Load*
Arsenic		ug/l	lbs/day
Barium		ug/l	lbs/day
Cadmium		ug/l	lbs/day
Chromium		ug/l	lbs/day
Lead		ug/l	lbs/day
Mercury		ug/l	lbs/day
Selenium		ug/l	lbs/day
Silver		ug/l	lbs/day
Fluoride (3)		ug/l	lbs/day
to		ug/l	lbs/day
Nitrates as N		ug/l	lbs/day
Chlorophenoxy Herbicides			
2,4-D		ug/l	lbs/day
2,4,5-TP		ug/l	lbs/day
Endrin		ug/l	lbs/day
ocyclohexane (Lindane)		ug/l	lbs/day
Methoxychlor		ug/l	lbs/day
Toxaphene		ug/l	lbs/day

VI. Numeric Stream Standards the Protection of Human Health from Water & Fish Consumption [Toxics]

	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Toxic Organics	[2 Liters/Day for 70 Kg Person over 70 Yr.]		[6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	ug/l	lbs/day	2700.0 ug/l	166.94 lbs/day
Acrolein	ug/l	lbs/day	780.0 ug/l	48.23 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7 ug/l	0.04 lbs/day
Benzene	ug/l	lbs/day	71.0 ug/l	4.39 lbs/day
Benzidine	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	ug/l	lbs/day	4.4 ug/l	0.27 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0 ug/l	1298.39 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	ug/l	lbs/day	99.0 ug/l	6.12 lbs/day

**Utah Division of Water Quality
Salt Lake City, Utah**

1,1,1-Trichloroethane				
Hexachloroethane	ug/l	lbs/day	8.9 ug/l	0.55 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	ug/l	lbs/day	42.0 ug/l	2.60 lbs/day
1,1,2,2-Tetrachloroethane	ug/l	lbs/day	11.0 ug/l	0.68 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4 ug/l	0.09 lbs/day
2-Chloroethyl vinyl ether	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	ug/l	lbs/day	4300.0 ug/l	265.86 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5 ug/l	0.40 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0 ug/l	29.06 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0 ug/l	24.73 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0 ug/l	1051.08 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	160.75 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	160.75 lbs/day
3,3'-Dichlorobenzidine	ug/l	lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethylene	ug/l	lbs/day	3.2 ug/l	0.20 lbs/day
1,2-trans-Dichloroethylene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	ug/l	lbs/day	790.0 ug/l	48.84 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0 ug/l	2.41 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0 ug/l	105.11 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0 ug/l	142.20 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1 ug/l	0.56 lbs/day
2,6-Dinitrotoluene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	ug/l	lbs/day	0.5 ug/l	0.03 lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0 ug/l	1793.02 lbs/day
Fluoranthene	ug/l	lbs/day	370.0 ug/l	22.88 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	ug/l	lbs/day	170000.0 ug/l	10510.79 lbs/day
Bis(2-chloroethoxy) methane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	ug/l	lbs/day	1600.0 ug/l	98.93 lbs/day
Methyl chloride (HM)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	ug/l	lbs/day	360.0 ug/l	22.26 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0 ug/l	1.36 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0 ug/l	2.10 lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0 ug/l	3.09 lbs/day
Hexachlorocyclopentadiene	ug/l	lbs/day	17000.0 ug/l	1051.08 lbs/day
Isophorone	ug/l	lbs/day	600.0 ug/l	37.10 lbs/day
Naphthalene				
Nitrobenzene	ug/l	lbs/day	1900.0 ug/l	117.47 lbs/day
2-Nitrophenol	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	ug/l	lbs/day	14000.0 ug/l	865.59 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0 ug/l	47.30 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1 ug/l	0.50 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0 ug/l	0.99 lbs/day
N-Nitrosodi-n-propylamine	ug/l	lbs/day	1.4 ug/l	0.09 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2 ug/l	0.51 lbs/day

**Utah Division of Water Quality
Salt Lake City, Utah**

Phenol	ug/l	lbs/day	4.6E+06 ug/l	2.84E+05 lbs/day
Bis(2-ethylhexyl)phthala	ug/l	lbs/day	5.9 ug/l	0.36 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0 ug/l	321.51 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0 ug/l	741.94 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	ug/l	lbs/day	120000.0 ug/l	7419.38 lbs/day
Dimethyl phthlate	ug/l	lbs/day	2.9E+06 ug/l	1.79E+05 lbs/day
Benzo(a)anthracene (P/	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthene (F	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (F	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Chrysene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthracene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	ug/l	lbs/day	11000.0 ug/l	680.11 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9 ug/l	0.55 lbs/day
Toluene	ug/l	lbs/day	200000 ug/l	12365.63 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0 ug/l	5.01 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0 ug/l	32.46 lbs/day
				lbs/day
Pesticides				lbs/day
Aldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.12 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.12 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0 ug/l	0.12 lbs/day
Endrin	ug/l	lbs/day	0.8 ug/l	0.05 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8 ug/l	0.05 lbs/day
Heptachlor	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 10'	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	ug/l		0.0 ug/l	0.00 lbs/day
Dioxin				
Dioxin (2,3,7,8-TCDD)	ug/l	lbs/day		

**Utah Division of Water Quality
Salt Lake City, Utah**

Metals

Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	265.86 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	13602.19 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	284.41 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.39 lbs/day
Zinc				

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

The modeling approach used in this analysis included one or a combination of the following models.

(1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).

(2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.

(3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8

(4) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

Coefficients used in the model were based, in part, upon the following references:

(1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

**Utah Division of Water Quality
Salt Lake City, Utah**

(2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al.
Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

The required information for the model may include the following information for both the upstream conditions at low flow and the effluent conditions:

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l
pH	Total NH ₃ -N, mg/l
BOD ₅ , mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

In addition to the upstream and effluent conditions, the models require a variety of physical and biological coefficients and other technical information. In the process of actually establishing the permit limits for an effluent, values are used based upon the available data, model calibration, literature values, site visits and best professional judgement.

Model Inputs

The following is upstream and discharge information that was utilized as inputs for the analysis. Dry washes are considered to have an upstream flow equal to the flow of the discharge.

Current Upstream Information

	Stream		pH	T-NH ₃ mg/l as N	BOD ₅ mg/l	DO mg/l	TRC mg/l	TDS mg/l
	Flow cfs	Temp. Deg. C						
Critical Low								
Summer (Irrig. Season)	4.20	18.2	8.3	0.06	1.00	7.03	0.00	740.0
Fall	4.20	5.0	8.1	0.06	1.00	---	0.00	1058.0
Winter	4.20	3.1	8.1	0.08	1.00	---	0.00	1149.0
Spring	4.20	13.7	8.2	0.16	1.00	---	0.00	634.0
Dissolved Metals	Al ug/l	As ug/l	Cd ug/l	CrIII ug/l	CrVI ug/l	Copper ug/l	Fe ug/l	Pb ug/l
All Seasons	2.40	1.49	0.20	6.00	6.00	2.40	76.0	0.30
Dissolved Metals	Hg ug/l	Ni ug/l	Se ug/l	Ag ug/l	Zn ug/l	Boron ug/l		
All Seasons	0.0000	0.53*	4.20	0.1*	14.10	10.0		

* 1/2 MDL

**Utah Division of Water Quality
Salt Lake City, Utah**

Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	4.70000	19.8	533.00	10.44418
Fall	4.70000	15.1		
Winter	4.70000	8.5		
Spring	4.70000	14.2		

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

Season	Daily Average	
Summer	4.700 MGD	7.271 cfs
Fall	4.700 MGD	7.271 cfs
Winter	4.700 MGD	7.271 cfs
Spring	4.700 MGD	7.271 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 4.7 MGD. If the discharger is allowed to have a flow greater than 4.7 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segments if the values below are met.

WET Requirements	LC50 >	EOP Effluent	[Acute]
	IC25 >	63.4% Effluent	[Chronic]

**Utah Division of Water Quality
Salt Lake City, Utah**

Effluent Limitation for Biological Oxygen Demand (BOD) based upon Water Quality Standards or Regulations

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent BOD limitation as follows:

Season	Concentration	
Summer	25.0 mg/l as BOD5	979.8 lbs/day
Fall	25.0 mg/l as BOD5	979.8 lbs/day
Winter	25.0 mg/l as BOD5	979.8 lbs/day
Spring	25.0 mg/l as BOD5	979.8 lbs/day

Effluent Limitation for Dissolved Oxygen (DO) based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent D.O. limitation as follows:

Season	Concentration
Summer	4.00
Fall	4.00
Winter	4.00
Spring	4.00

Effluent Limitation for Total Ammonia based upon Water Quality Standards

In-stream criteria of downstream segments for Total Ammonia will be met with an effluent limitation (expressed as Total Ammonia as N) as follows:

Season		Concentration	Load
Summer	4 Day Avg. - Chronic	2.8 mg/l as N	109.3 lbs/day
	1 Hour Avg. - Acute	10.7 mg/l as N	419.3 lbs/day
Fall	4 Day Avg. - Chronic	4.1 mg/l as N	162.1 lbs/day
	1 Hour Avg. - Acute	11.6 mg/l as N	456.0 lbs/day
Winter	4 Day Avg. - Chronic	5.8 mg/l as N	227.2 lbs/day
	1 Hour Avg. - Acute	19.4 mg/l as N	760.6 lbs/day
Spring	4 Day Avg. - Chronic	3.9 mg/l as N	154.3 lbs/day
	1 Hour Avg. - Acute	11.6 mg/l as N	456.0 lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 100.%.

**Utah Division of Water Quality
Salt Lake City, Utah**

Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

In-stream criteria of downstream segments for Total Residual Chlorine will be met with an effluent limitation as follows:

Season		Concentration		Load	
Summer	4 Day Avg. - Chronic	0.017	mg/l	0.66	lbs/day
	1 Hour Avg. - Acute	0.029	mg/l	1.15	lbs/day
Fall	4 Day Avg. - Chronic	0.017	mg/l	0.66	lbs/day
	1 Hour Avg. - Acute	0.029	mg/l	1.15	lbs/day
Winter	4 Day Avg. - Chronic	0.017	mg/l	0.66	lbs/day
	1 Hour Avg. - Acute	0.029	mg/l	1.15	lbs/day
Spring	4 Day Avg. - Chronic	0.017	mg/l	0.00	lbs/day
	1 Hour Avg. - Acute	0.029	mg/l	0.00	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Summer	Maximum, Acute	1465.7	mg/l	28.72	tons/day
Fall	Maximum, Acute	1282.0	mg/l	25.12	tons/day
Winter	Maximum, Acute	1229.5	mg/l	24.09	tons/day
Spring	4 Day Avg. - Chronic	1526.9	mg/l	29.92	tons/day

Colorado Salinity Forum Limits

Determined by Permitting Section

**Effluent Limitations for Total Recoverable Metals based upon
Water Quality Standards**

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 400 mg/l):

	4 Day Average			1 Hour Average	
	Concentration	Load		Concentration	Load
Aluminum*	N/A	N/A	965.9	ug/l	37.9 lbs/day
Arsenic*	298.89 ug/l	7.6 lbs/day	437.8	ug/l	17.2 lbs/day
Cadmium	1.08 ug/l	0.0 lbs/day	11.2	ug/l	0.4 lbs/day
Chromium III	419.69 ug/l	10.6 lbs/day	7,230.7	ug/l	283.9 lbs/day
Chromium VI*	13.89 ug/l	0.4 lbs/day	18.9	ug/l	0.7 lbs/day
Copper	46.73 ug/l	1.2 lbs/day	65.9	ug/l	2.6 lbs/day
Iron*	N/A	N/A	1,266.9	ug/l	49.7 lbs/day
Lead	29.14 ug/l	0.7 lbs/day	614.4	ug/l	24.1 lbs/day
Mercury*	0.02 ug/l	0.0 lbs/day	3.1	ug/l	0.1 lbs/day
Nickel	265.44 ug/l	6.7 lbs/day	1,953.5	ug/l	76.7 lbs/day
Selenium*	4.83 ug/l	0.1 lbs/day	24.6	ug/l	1.0 lbs/day
Silver	N/A ug/l	N/A lbs/day	52.9	ug/l	2.1 lbs/day

**Utah Division of Water Quality
Salt Lake City, Utah**

Zinc	603.71 ug/l	15.3 lbs/day	495.8	ug/l	19.5 lbs/day
Cyanide*	8.20 ug/l	0.2 lbs/day	28.4	ug/l	1.1 lbs/day

*Limits for these metals are based on the dissolved standard.

**Effluent Limitations for Heat/Temperature based upon
Water Quality Standards**

Summer	21.4 Deg. C.	70.4 Deg. F
Fall	8.2 Deg. C.	46.7 Deg. F
Winter	6.3 Deg. C.	43.3 Deg. F
Spring	16.9 Deg. C.	62.3 Deg. F

**Effluent Limitations for Organics [Pesticides]
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Organics [Pesticides]
will be met with an effluent limit as follows:

	4 Day Average		1 Hour Average		
	Concentration	Load	Concentration		Load
Aldrin			1.5E+00	ug/l	9.11E-02 lbs/day
Chlordane	4.30E-03 ug/l	1.69E-01 lbs/day	1.2E+00	ug/l	7.29E-02 lbs/day
DDT, DDE	1.00E-03 ug/l	3.92E-02 lbs/day	5.5E-01	ug/l	3.34E-02 lbs/day
Dieldrin	1.90E-03 ug/l	7.45E-02 lbs/day	1.3E+00	ug/l	7.59E-02 lbs/day
Endosulfan	5.60E-02 ug/l	2.19E+00 lbs/day	1.1E-01	ug/l	6.68E-03 lbs/day
Endrin	2.30E-03 ug/l	9.01E-02 lbs/day	9.0E-02	ug/l	5.47E-03 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	6.07E-04 lbs/day
Heptachlor	3.80E-03 ug/l	1.49E-01 lbs/day	2.6E-01	ug/l	1.58E-02 lbs/day
Lindane	8.00E-02 ug/l	3.14E+00 lbs/day	1.0E+00	ug/l	6.07E-02 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	1.82E-03 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	6.07E-04 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	2.43E-03 lbs/day
PCB's	1.40E-02 ug/l	5.49E-01 lbs/day	2.0E+00	ug/l	1.21E-01 lbs/day
Pentachlorophenol	1.30E+01 ug/l	5.09E+02 lbs/day	2.0E+01	ug/l	1.21E+00 lbs/day
Toxephene	2.00E-04 ug/l	7.84E-03 lbs/day	7.3E-01	ug/l	4.43E-02 lbs/day

**Utah Division of Water Quality
Salt Lake City, Utah**

**Effluent Targets for Pollution Indicators
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Pollution Indicators
will be met with an effluent limit as follows:

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	196.3 lbs/day
Nitrates as N	4.0 mg/l	157.1 lbs/day
Total Phosphorus as P	0.05 mg/l	2.0 lbs/day
Total Suspended Solids	90.0 mg/l	3534.0 lbs/day

Note: Pollution indicator targets are for information purposes only.

**Effluent Limitations for Protection of Human Health [Toxics Rule]
Based upon Water Quality Standards (Most stringent of 1C or 3A & 3B as appropriate.)**

In-stream criteria of downstream segments for Protection of Human Health [Toxics]
will be met with an effluent limit as follows:

	Maximum Concentration	
	Concentration	Load
Toxic Organics		
Acenaphthene	4.26E+03 ug/l	1.67E+02 lbs/day
Acrolein	1.23E+03 ug/l	4.82E+01 lbs/day
Acrylonitrile	1.04E+00 ug/l	4.08E-02 lbs/day
Benzene	1.12E+02 ug/l	4.39E+00 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	6.94E+00 ug/l	2.72E-01 lbs/day
Chlorobenzene	3.31E+04 ug/l	1.30E+03 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	1.21E-03 ug/l	4.76E-05 lbs/day
1,2-Dichloroethane	1.56E+02 ug/l	6.12E+00 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	1.40E+01 ug/l	5.50E-01 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	6.63E+01 ug/l	2.60E+00 lbs/day
1,1,2,2-Tetrachloroethane	1.74E+01 ug/l	6.80E-01 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	2.21E+00 ug/l	8.66E-02 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	6.78E+03 ug/l	2.66E+02 lbs/day
2,4,6-Trichlorophenol	1.03E+01 ug/l	4.02E-01 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	7.41E+02 ug/l	2.91E+01 lbs/day
2-Chlorophenol	6.31E+02 ug/l	2.47E+01 lbs/day
1,2-Dichlorobenzene	2.68E+04 ug/l	1.05E+03 lbs/day
1,3-Dichlorobenzene	4.10E+03 ug/l	1.61E+02 lbs/day

**Utah Division of Water Quality
Salt Lake City, Utah**

1,4-Dichlorobenzene	4.10E+03 ug/l	1.61E+02 lbs/day
3,3'-Dichlorobenzidine	1.21E-01 ug/l	4.76E-03 lbs/day
1,1-Dichloroethylene	5.05E+00 ug/l	1.98E-01 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	1.25E+03 ug/l	4.88E+01 lbs/day
1,2-Dichloropropane	6.15E+01 ug/l	2.41E+00 lbs/day
1,3-Dichloropropylene	2.68E+03 ug/l	1.05E+02 lbs/day
2,4-Dimethylphenol	3.63E+03 ug/l	1.42E+02 lbs/day
2,4-Dinitrotoluene	1.44E+01 ug/l	5.63E-01 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	8.52E-01 ug/l	3.34E-02 lbs/day
Ethylbenzene	4.58E+04 ug/l	1.79E+03 lbs/day
Fluoranthene	5.84E+02 ug/l	2.29E+01 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	2.68E+05 ug/l	1.05E+04 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	2.52E+03 ug/l	9.89E+01 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	5.68E+02 ug/l	2.23E+01 lbs/day
Dichlorobromomethane(HM)	3.47E+01 ug/l	1.36E+00 lbs/day
Chlorodibromomethane (HM)	5.36E+01 ug/l	2.10E+00 lbs/day
Hexachlorocyclopentadiene	2.68E+04 ug/l	1.05E+03 lbs/day
Isophorone	9.47E+02 ug/l	3.71E+01 lbs/day
Naphthalene		
Nitrobenzene	3.00E+03 ug/l	1.17E+02 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	2.21E+04 ug/l	8.66E+02 lbs/day
4,6-Dinitro-o-cresol	1.21E+03 ug/l	4.73E+01 lbs/day
N-Nitrosodimethylamine	1.28E+01 ug/l	5.01E-01 lbs/day
N-Nitrosodiphenylamine	2.52E+01 ug/l	9.89E-01 lbs/day
N-Nitrosodi-n-propylamine	2.21E+00 ug/l	8.66E-02 lbs/day
Pentachlorophenol	1.29E+01 ug/l	5.07E-01 lbs/day
Phenol	7.26E+06 ug/l	2.84E+05 lbs/day
Bis(2-ethylhexyl)phthalate	9.31E+00 ug/l	3.65E-01 lbs/day
Butyl benzyl phthalate	8.20E+03 ug/l	3.22E+02 lbs/day
Di-n-butyl phthalate	1.89E+04 ug/l	7.42E+02 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	1.89E+05 ug/l	7.42E+03 lbs/day
Dimethyl phthlate	4.58E+06 ug/l	1.79E+05 lbs/day
Benzo(a)anthracene (PAH)	4.89E-02 ug/l	1.92E-03 lbs/day
Benzo(a)pyrene (PAH)	4.89E-02 ug/l	1.92E-03 lbs/day
Benzo(b)fluoranthene (PAH)	4.89E-02 ug/l	1.92E-03 lbs/day
Benzo(k)fluoranthene (PAH)	4.89E-02 ug/l	1.92E-03 lbs/day
Chrysene (PAH)	4.89E-02 ug/l	1.92E-03 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	4.89E-02 ug/l	1.92E-03 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	4.89E-02 ug/l	1.92E-03 lbs/day

**Utah Division of Water Quality
Salt Lake City, Utah**

Pyrene (PAH)	1.74E+04 ug/l	6.80E+02 lbs/day
Tetrachloroethylene	1.40E+01 ug/l	5.50E-01 lbs/day
Toluene	3.16E+05 ug/l	1.24E+04 lbs/day
Trichloroethylene	1.28E+02 ug/l	5.01E+00 lbs/day
Vinyl chloride	8.28E+02 ug/l	3.25E+01 lbs/day

Pesticides

Aldrin	2.21E-04 ug/l	8.66E-06 lbs/day
Dieldrin	2.21E-04 ug/l	8.66E-06 lbs/day
Chlordane	9.31E-04 ug/l	3.65E-05 lbs/day
4,4'-DDT	9.31E-04 ug/l	3.65E-05 lbs/day
4,4'-DDE	9.31E-04 ug/l	3.65E-05 lbs/day
4,4'-DDD	1.33E-03 ug/l	5.19E-05 lbs/day
alpha-Endosulfan	3.16E+00 ug/l	1.24E-01 lbs/day
beta-Endosulfan	3.16E+00 ug/l	1.24E-01 lbs/day
Endosulfan sulfate	3.16E+00 ug/l	1.24E-01 lbs/day
Endrin	1.28E+00 ug/l	5.01E-02 lbs/day
Endrin aldehyde	1.28E+00 ug/l	5.01E-02 lbs/day
Heptachlor	3.31E-04 ug/l	1.30E-05 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	7.10E-05 ug/l	2.78E-06 lbs/day
PCB-1254 (Arochlor 1254)	7.10E-05 ug/l	2.78E-06 lbs/day
PCB-1221 (Arochlor 1221)	7.10E-05 ug/l	2.78E-06 lbs/day
PCB-1232 (Arochlor 1232)	7.10E-05 ug/l	2.78E-06 lbs/day
PCB-1248 (Arochlor 1248)	7.10E-05 ug/l	2.78E-06 lbs/day
PCB-1260 (Arochlor 1260)	7.10E-05 ug/l	2.78E-06 lbs/day
PCB-1016 (Arochlor 1016)	7.10E-05 ug/l	2.78E-06 lbs/day

Pesticide

Toxaphene	1.18E-03 ug/l	4.64E-05 lbs/day
-----------	---------------	------------------

Metals

Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

**Utah Division of Water Quality
Salt Lake City, Utah**

Dioxin

Dioxin (2,3,7,8-TCDD)

2.21E-08 ug/l

8.66E-10 lbs/day

**Metals Effluent Limitations for Protection of All Beneficial Uses
Based upon Water Quality Standards and Toxics Rule**

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		965.9				965.9	N/A
Antimony				6783.9		6783.9	
Arsenic	157.8	437.8			0.0	157.8	298.9
Barium						0.0	
Beryllium						0.0	
Cadmium	15.7	11.2			0.0	11.2	1.1
Chromium (III)		7230.7			0.0	7230.7	419.7
Chromium (VI)	154.3	18.9			0.0	18.89	13.89
Copper	314.1	65.9				65.9	46.7
Cyanide		28.4	347081.9			28.4	8.2
Iron		1266.9				1266.9	
Lead	157.6	614.4			0.0	157.6	29.1
Mercury		3.09		0.24	0.0	0.24	0.019
Nickel		1953.5		7257.2		1953.5	265.4
Selenium	76.5	24.6			0.0	24.6	4.8
Silver		52.9			0.0	52.9	
Thallium				9.9		9.9	
Zinc		495.8				495.8	603.7
Boron	1183.1					1183.1	

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	965.9	N/A	
Antimony	6783.87		
Arsenic	157.8	298.9	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	11.2	1.1	
Chromium (III)	7230.7	420	
Chromium (VI)	18.9	13.9	
Copper	65.9	46.7	

**Utah Division of Water Quality
Salt Lake City, Utah**

Cyanide	28.4	8.2	
Iron	1266.9		
Lead	157.6	29.1	
Mercury	0.237	0.019	
Nickel	1953.5	265	
Selenium	24.6	4.8	
Silver	52.9	N/A	
Thallium	9.9		
Zinc	495.8	603.7	Acute Controls
Boron	1183.09		

Other Effluent Limitations are based upon R317-1.

E. coli 126.0 organisms per 100 ml

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

The antidegradation rules and procedures allow for modification of effluent limits less than those based strictly upon mass balance equations utilizing 100% of the assimilative capacity of the receiving water. Additional factors include considerations for "Blue-ribbon" fisheries, special recreational areas, threatened and endangered species, and drinking water sources.

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required. Basic renewal, no increase in effluent flow or concentration.

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for an exceedence of this value.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important downstream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

**Utah Division of Water Quality
Salt Lake City, Utah**

XIII. Notice of UPDES Requirement

This Addendum to the Statement of Basis does not authorize any entity or party to discharge to the waters of the State of Utah. That authority is granted through a UPDES permit issued by the Utah Division of Water Quality. The numbers presented here may be changed as a function of other factors. Dischargers are strongly urged to contact the Permits Section for further information. Permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations provided that the values in this wasteload analysis [TMDL] are not compromised. See special provisions in Utah Water Quality Standards for adjustments in the Total Dissolved Solids values based upon background concentration.

**Utah Division of Water Quality
Salt Lake City, Utah**

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that the proposed discharge will not require a Level II Antidegradation Review. The proposed permit is a simple renewal. No increase in effluent flow or concentration.